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(54) Customer activity data system and method

(57) A customer activity data system and method which generate reports for manufacturers, sellers, and other suppliers. The system includes a computer for analyzing transaction data obtained from a transaction terminal and information characterizing customer activity at an information terminal specific to an item bearing a radio frequency identification (RFID) label, and for generating a report.

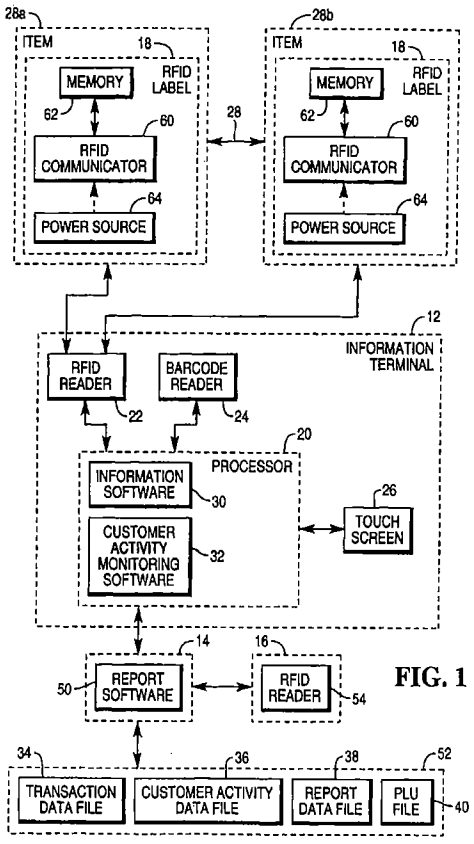

FIG. 1

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Description

[0001] The present invention relates generally to point of sales (POS) terminals, and, more specifically, to a customer activity data system and method.

[0002] RFID technology provides an alternative to bar code reader technology for distinguishing and recording items for purchase. Some of the uses of RFID technology are disclosed in U.S. Patent No. 6,019,394 assigned to the assignee of the present invention.

[0003] Price verifiers have been introduced into stores to complement point-of-sale (POS) terminals. Like POS terminals, price verifiers include a barcode reader for reading a barcode label on an item. Price verifiers determine prices from a price look-up file (PLU) file shared with the POS terminals.

[0004] Manufacturers and retailers manage the various categories of items displayed in a retail store based primarily on items sold and on quantities of items sold. This data is obtained from inventory records as products are sold.

[0005] Merchandise management information may be obtained from a price verifier. For example, a customer may use a price verifier to scan two similar products from two different manufacturers. Other activities are also possible.

[0006] U.S. Patent No. 6,246,995 entitled, "Product Activity Data Collection System", describes the use of a Price Verifier to enhance merchandise management in a retail store. However, without item identification information, this method produces data which is only marginally useful.

[0007] Therefore, it would be desirable to provide a system and method of collecting item activity data to improve promotion of compared items.

[0008] In accordance with the teachings of the present invention, a customer activity data system and method is provided.

[0009] It is accordingly an object of the present invention to provide a customer activity data system and method.

[0010] An embodiment of the present invention will now be described, by way of an example, with reference to the accompanying drawings, in which:

Fig. 1 is a block diagram of a transaction processing system; and

Fig. 2 is a flow diagram illustrating the method of the present invention.

[0011] Referring now to Fig. 1, system 10 primarily includes information terminal 12, information server 14, transaction terminal 16, and radio frequency identification (RFID) labels 18.

[0012] Information terminal 12 provides item information to customers. Information terminal 12 may include a kiosk, such as a price verifier. An example information terminal 12 includes processor 20, RFID reader 22, barcode reader 24, touch screen 26, and storage medium 28.

[0013] Processor 20 executes information software 30 which identifies items 28 presented by customers and displays information about items 28. Information software 30 may obtain such information locally or from server 14.

[0014] For example, information software 30 may provide price information to customers. In this role, information software 30 causes one or both of RFID reader 22 and barcode reader 24 to seek information from items 28. Information software 30 identifies items 28 from the obtained information and requests price information from information server 14. Information server 14 returns the requested price information from price look-up (PLU) file 40 to information software 30 and information software 30 displays the information on touch screen 26.

[0015] Processor 20 also executes customer activity monitoring software 32 which recognizes predetermined types of customer activity at information terminal 12. Types of customer activity include information gathering, such as price checks, and purchases. Customer activity monitoring software 32 logs information characterizing the activity in customer activity data file 36. Customer activity data file 36 may be stored locally or at server 14.

[0016] Server 14 provides information to information terminal 12 and transaction terminal 16. The information is typically price information. Server 14 additionally executes report software 50, which analyses relationships between data from transaction data file 34 and data from customer activity data file 36 to provide insights to store management and to manufacturers and other suppliers. Server 14 stores reports in report data file 38.

[0017] Transaction terminal 16 records sales of items. For this purpose, transaction terminal includes RFID reader 54, which reads RFID labels 18 on purchased items. Transaction terminal 16 stores transaction information in transaction data file 34.

[0018] Storage medium stores transaction data file 34, customer activity data file 36, report data file 38, and PLU file 40. Some of these files may also be stored locally in information terminal 12 or transaction terminal 16.

[0019] RFID labels 18 store information about items and communicate the information to RFID readers 22 and 54. One embodiment of RFID label 18 is active and includes RFID communicator 60, memory 62, and power source 64. RFID communicator 60 sends item information stored in RFID memory 62 to RFID readers 22 and 54. RFID communicator 60 may include an RF transceiver.

[0020] Memory 62 stores the information and may include a read-only memory (ROM) for one-time use, or a programmable ROM (EPROM) for repeated use.

[0021] Power source 64 may include a battery.

[0022] RFID label 18 may also be a passive label.

Passive RFID labels use very little energy and may only include RFID communicator 60. Power may be derived from radio waves.

[0023] RFID communicator 60 may include a reflective antenna which has a frequency which is unique among RFID labels 18. RFID communicator 60 communicates RFID label identification information which must be cross-referenced to obtain item identification information. RFID communicator 60 may include a number of antennas, such as conductive ink antennas.

[0024] RFID labels 18 may vary in size, depending upon product size, and may be visible or hidden when attached to products. RFID label 18 may be removably or permanently attached to products.

[0025] In one example operation, customer activity monitoring software 32 recognizes comparison price checks on different items 28a and 60b at information terminal 12. Customer activity monitoring software 32 obtains RFID label identification information from items 28a and 60b and stores the RFID label identification information in customer activity data file 36.

[0026] This information, linked with purchase information from transaction terminal 16 in transaction data file 34 could provide valuable insight to sellers, manufacturers, and suppliers of items 28a and 60b. The information could answer questions like "whose product was compared to mine when mine was purchased", "whose product was compared to mine when mine was not purchased", "was my product examined but not compared to any other product", "was my product examined but not purchased", "was my product examined and purchased", and "was my product examined and were complementary or related items purchased".

[0027] Advantageously, capture of RFID identification information facilitates a higher level of accuracy in merchandising data.

[0028] Turning now to Fig. 2, operation is further illustrated in more detail beginning with START 70.

[0029] In step 72, information software 30 obtains RFID identification information from one or more items 28 using RFID reader 22.

[0030] In step 74, customer activity monitoring software 32 recognizes the customer activity at information terminal 12 and logs information characterizing the activity in customer activity data file 36, including the RFID identification information.

[0031] In step 76, transaction terminal 16 records purchase of none, some, or all of the items at transaction terminal 16. Transaction terminal 16 stores the transaction data, including the RFID identification numbers, in transaction data file 34.

[0032] In step 78, report software 50 analyzes the transaction data and the customer activity data of items with identified RFID labels and generates a report.

[0033] In step 80, operation ends.

[0034] Store management, suppliers, and manufacturers benefit from seeing how customers react to specific products. They can use the report information to alter the products or how they sell the products.

[0035] Although the present invention has been described with particular reference to certain preferred embodiments thereof, variations and modifications of the present invention can be effected within the spirit and scope of the following claims.

Claims

1. A method of tracking customer activity comprising the steps of:

   (a) analyzing the transaction data obtained from a transaction terminal and information **characterizing** customer activity at an information terminal specific to an item bearing a radio frequency identification (RFID) label; and
   (b) generating a report.

2. A method of tracking customer activity comprising the steps of:

   (a) obtaining radio frequency identification (RFID) identification information from an RFID label on an item carried by a customer;
   (b) recognizing the customer activity related to the item;
   (c) storing information **characterizing** the customer activity;
   (d) recording transaction data;
   (e) analyzing the transaction data and the information **characterizing** the customer activity; and
   (f) generating a report.

3. The method of tracking customer activity as recited in claim 2, wherein step (e) comprises the substep of:

   (e-1) determining whether another item was compared to the one item.

4. The method of tracking customer activity as recited in claim 3, wherein step (e) further comprises the substep of:

   (e-2) determining whether the item was purchased.

5. The method of tracking customer activity as recited in claim 4, wherein step (e) further comprises the substep of:

   (e-3) determining whether a related item was purchased.

6. A system for tracking customer activity comprising:

a computer for analyzing transaction data obtained from a transaction terminal and information **characterizing** customer activity at an information terminal specific to an item bearing a radio frequency identification (RFID) label, and for generating a report.

7. A system for tracking customer activity comprising:

an information terminal including

a radio frequency identification (RFID) label interrogator for reading information from an RFID label on an item carried by a customer; and
a first computer which recognizes the customer activity related to the item and stores information **characterizing** the customer activity;

a transaction terminal for recording transaction data; and
a second computer coupled to the transaction terminal and the information terminal for analyzing the transaction data and the information **characterizing** the customer activity, and for generating a report.

8. The system as recited in claim 7, wherein the second computer also determines whether another item was compared to the one item.

9. The system as recited in claim 8, wherein the second computer also determines whether the item was purchased.

10. The system as recited in claim 9, wherein the second computer also determines whether a related item was purchased.

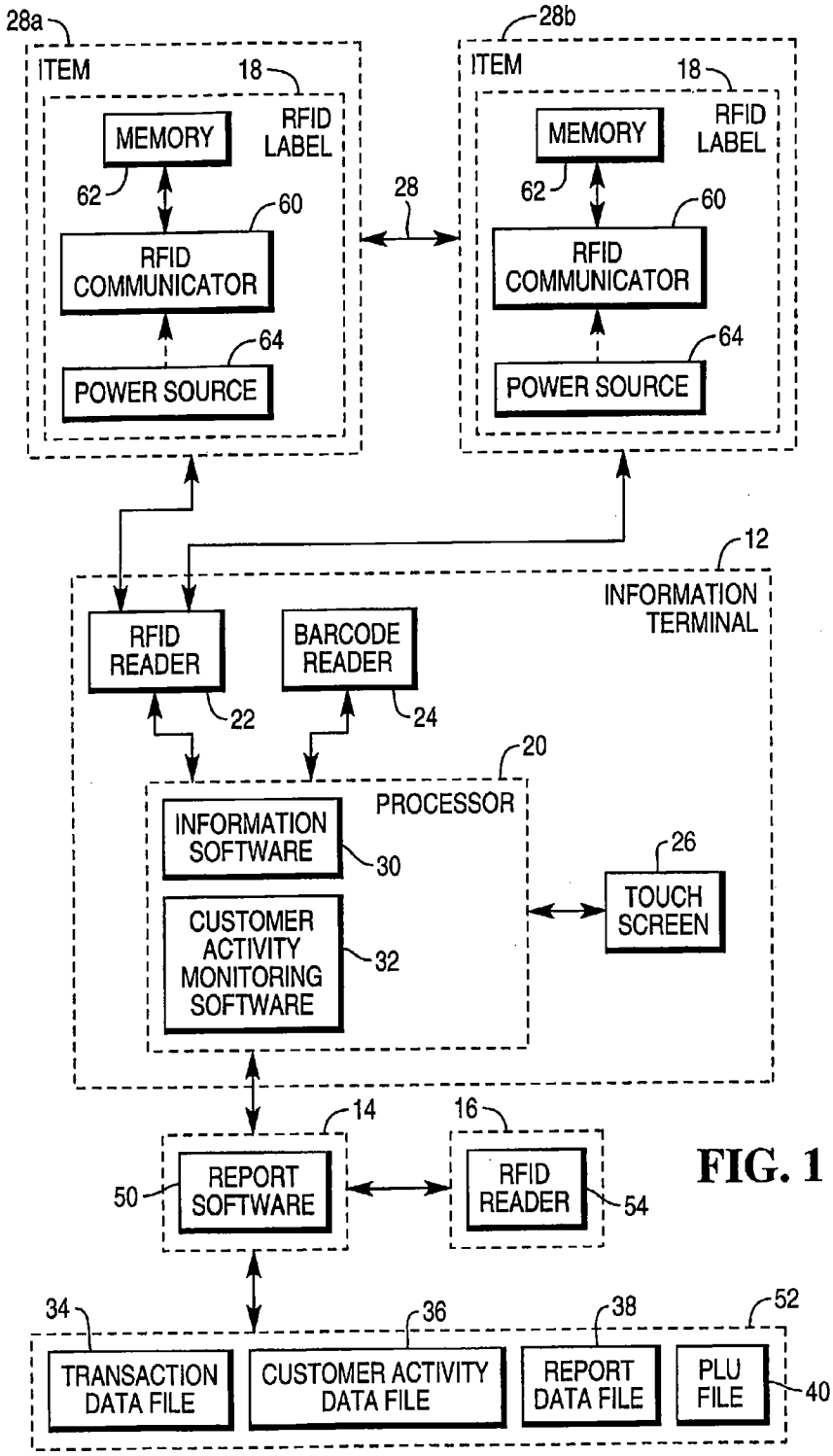
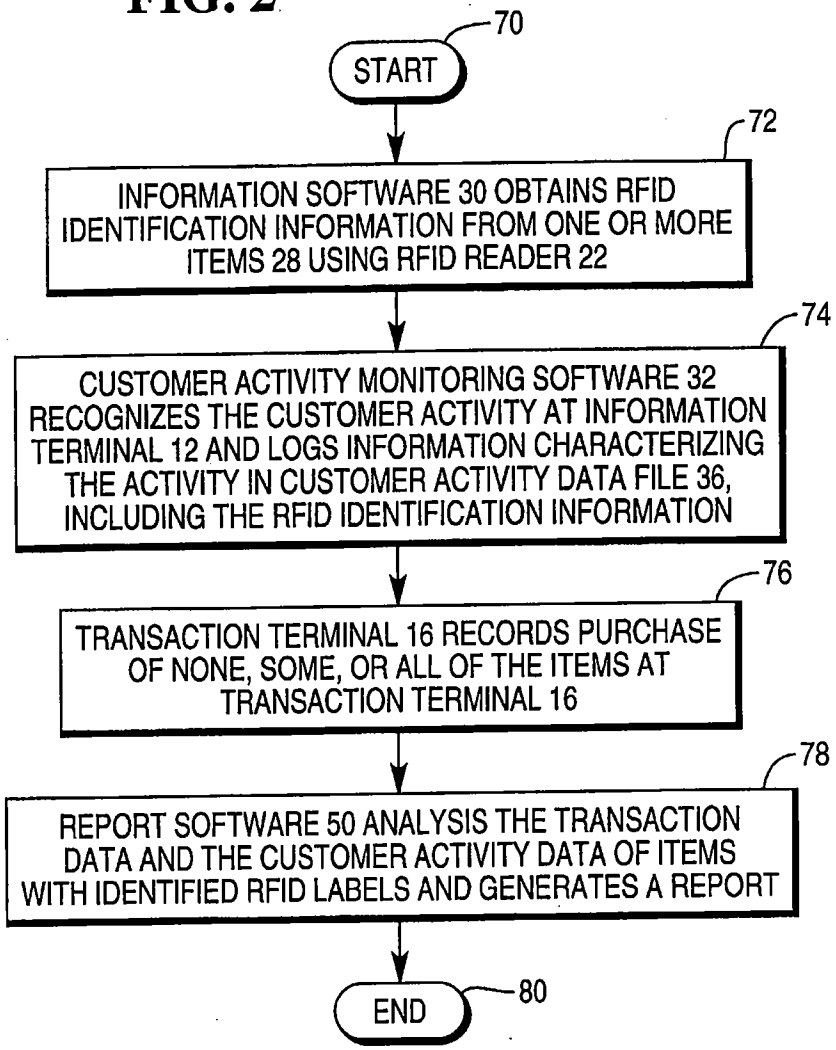

28a
ITEM
18
RFID LABEL
MEMORY
62
60
RFID COMMUNICATOR
64
POWER SOURCE
28
28b
ITEM
18
RFID LABEL
MEMORY
62
60
RFID COMMUNICATOR
64
POWER SOURCE
12
INFORMATION TERMINAL
RFID READER
22
BARCODE READER
24
20
PROCESSOR
INFORMATION SOFTWARE
30
CUSTOMER ACTIVITY MONITORING SOFTWARE
32
26
TOUCH SCREEN
14
16
50
REPORT SOFTWARE
RFID READER
54
34
36
38
52
TRANSACTION DATA FILE
CUSTOMER ACTIVITY DATA FILE
REPORT DATA FILE
PLU FILE
40

FIG. 1

FIG. 2


70
START
72
INFORMATION SOFTWARE 30 OBTAINS RFID IDENTIFICATION INFORMATION FROM ONE OR MORE ITEMS 28 USING RFID READER 22
74
CUSTOMER ACTIVITY MONITORING SOFTWARE 32 RECOGNIZES THE CUSTOMER ACTIVITY AT INFORMATION TERMINAL 12 AND LOGS INFORMATION CHARACTERIZING THE ACTIVITY IN CUSTOMER ACTIVITY DATA FILE 36, INCLUDING THE RFID IDENTIFICATION INFORMATION
76
TRANSACTION TERMINAL 16 RECORDS PURCHASE OF NONE, SOME, OR ALL OF THE ITEMS AT TRANSACTION TERMINAL 16
78
REPORT SOFTWARE 50 ANALYSIS THE TRANSACTION DATA AND THE CUSTOMER ACTIVITY DATA OF ITEMS WITH IDENTIFIED RFID LABELS AND GENERATES A REPORT
END
80

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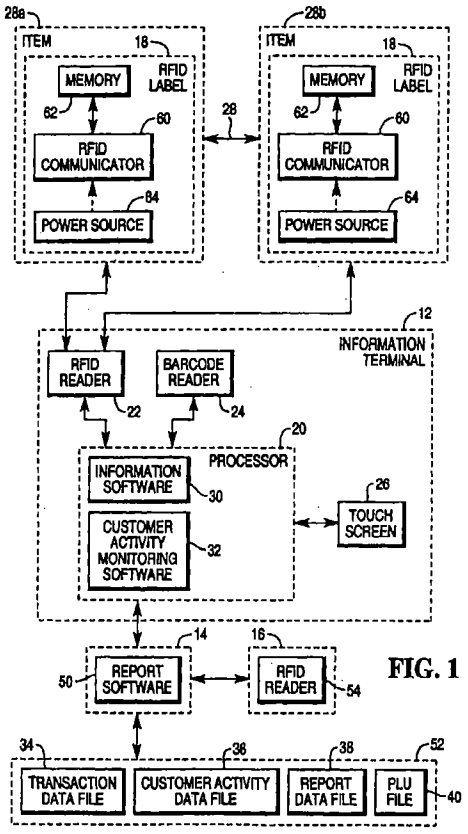

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 03 25 1209

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 01 18732 A (CATALINA MARKETING INT) 15 March 2001 (2001-03-15) * page 3, paragraph 3 - page 15, last paragraph; figures 1,2 *	1-10	G06F17/60
X	DE 199 21 748 A (KUEGEL STEFAN) 23 November 2000 (2000-11-23) * column 1, line 3 - column 4, line 37 *	1-10	
X	EP 0 961 253 A (NCR INT INC) 1 December 1999 (1999-12-01) * paragraph [0001] - paragraph [0008]; claims 7-11 *	1-5	
A		6-10	
A	WO 99 05659 A (CHECKPOINT SYSTEMS INC) 4 February 1999 (1999-02-04) * page 9, line 1 - page 11, line 5; figures 1-6 *	1-10	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

G06F
G07G
G08B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	13 November 2003	Beatty, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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13-11-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0118732 A	15-03-2001	AU 3478800 A	10-04-2001
		BE 1013810 A3	03-09-2002
		CA 2382555 A1	15-03-2001
		EP 1252590 A2	30-10-2002
		JP 2003527665 T	16-09-2003
		PT 102442 A	29-12-2000
		WO 0118732 A2	15-03-2001
		ZA 200001223 A	25-01-2001
DE 19921748 A	23-11-2000	DE 19921748 A1	23-11-2000
EP 0961253 A	01-12-1999	US 6246995 B1	12-06-2001
		EP 0961253 A2	01-12-1999
		JP 2000040182 A	08-02-2000
WO 9905659 A	04-02-1999	AU 8403698 A	16-02-1999
		TW 393630 B	11-06-2000
		WO 9905659 A1	04-02-1999

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